ABSTRACT

BACKGROUND: Successful management of furcation involved tooth is a clinical challenge. Closure of furcation defects is the most desirable outcome of therapy to ensure optimal maintenance and long-term success. Attempts at regenerative therapy based on the concept of guided tissue regeneration (GTR) can result in significant improvements in clinical parameters, bone fill and closure of defects. Various biomaterials have been employed over years to achieve this goal.

AIM: Purpose of the present study is to assess clinically and radiographically the regenerative capacity of 0.2% hyaluronic acid gel in conjunction with chorion GTR membrane in Grade II furcation defects.

MATERIALS AND METHOD: A total of 10 subjects with clinical and radiographic evidence of Grade II furcation involvement, indicated for regenerative periodontal surgery were selected. After completion of phase I therapy, an open flap debridement was done at the defect site. Hyaluronic acid gel 0.2% (Gengigel®) was applied into the defect followed by placement of chorion membrane. Plaque index (PI), gingival bleeding index (GBI), probing pocket depth (PPD), horizontal probing depth (HPD), clinical attachment level (CAL) and radiographic defect depth (DD) were recorded at baseline, 3 months and 6 months.

RESULTS: Healing was uneventful in all patients. At 6 months, significant improvements were observed in PI and GBI with mean differences of 1.5±0.10 and 50.85±4.49 respectively. The probing depth measurements revealed a mean difference of 5.2±0.24 at 6 months, similarly, the CAL and HPD recordings demonstrated mean differences of 4.9±0.27 and 4.2±0.24 respectively. A statistically significant decrease was observed in the mean radiographic DD values at 3 months and 6 months, indicating the defect closure. The mean bone fill (in mm) was 1.19±0.45 at 3 months and 2.7±0.33 at 6months, accounting to a mean bone fill percentage (%) of 40.73±14.98 at 3 months and 91.2±6.11 at 6 months. Statistically highly significant improvements were attained in all the clinical and radiographic parameters at 3 months and 6 months ($p < 0.05$).

CONCLUSION: Within the limitations of this study, it could be concluded that the combined use of 0.2% hyaluronic acid gel and chorion GTR membrane resulted in significant improvements in all the clinical and radiographic parameters evaluated at all time intervals with near complete defect closures at 6 months. However, controlled clinical trials are required with larger sample size and long-term follow-up to validate the regenerative capabilities of these materials where, histologic evaluation and surgical re-entry would be more appropriate methods to confirm the findings.

KEY WORDS: Furcation Defects, Regenerative periodontal therapy, 0.2% Hyaluronic acid gel, Chorion membrane, Guided tissue regeneration.